



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/620,644	07/16/2003	Patrick T. Mather	883933.0088	1474
21832	7590	05/21/2004	EXAMINER	
MCCARTER & ENGLISH LLP CITYPLACE I 185 ASYLUM STREET HARTFORD, CT 06103			CHOI, LING SIU	
			ART UNIT	PAPER NUMBER
			1713	

DATE MAILED: 05/21/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

CP

<b>Office Action Summary</b>	<b>Application No.</b>		<b>Applicant(s)</b>	
	10/620,644		MATHER ET AL.	
	<b>Examiner</b>		<b>Art Unit</b>	
	Ling-Siu Choi		1713	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☐ Claim(s) 1-21 is/are pending in the application.
- 4a) Of the above claim(s) 6-14, 20 and 21 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☐ Claim(s) 1-5 and 15-19 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |  |
|--|--|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. ____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)            |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date ____ | 6) <input type="checkbox"/> Other: ____  |

Art Unit: 1713

DETAILED ACTION

*Election/Restriction*

1. Restriction to one of the following inventions is required under 35 U.S.C. 121:
  - I. Claims 1-5 and 15-19, drawn to an amphiphilic telechelic comprising POSS and articles , classified in class 528, subclass 37.
  - II. Claims 6-14 , drawn to a method to form the amphiphilic telechelic, classified in class 526, subclass 307.5.
  - III. Claims 20 and 21 , drawn to a method to prepare a shape memory polymer and the shap memory polymer , classified in class 525, subclass 440.

2. The inventions are distinct, each from the other because of the following reasons:

Inventions II and I are related as process of making and product made. The inventions are distinct if either or both of the following can be shown: (1) that the process as claimed can be used to make other and materially different product or (2) that the product as claimed can be made by another and materially different process (MPEP § 806.05(f)). In the instant case, the process as claimed can be used to make other and materially different product because the POSS used to make the product may not be isocyanatopropyldimethylsilylcyclohexyl-POSS.

Art Unit: 1713

Inventions I and III are unrelated. Inventions are unrelated if it can be shown that they are not disclosed as capable of use together and they have different modes of operation, different functions, or different effects (MPEP § 806.04, MPEP § 808.01). In the instant case the different inventions relates to an amphiphilic telechelic comprising POSS and articles and to a method to prepare a shape memory polymer and the shap memory polymer.

Inventions II and III are unrelated. Inventions are unrelated if it can be shown that they are not disclosed as capable of use together and they have different modes of operation, different functions, or different effects (MPEP § 806.04, MPEP § 808.01). In the instant case the different inventions relates to a method to form the amphiphilic telechelic and to a method to prepare a shape memory polymer and the shap memory polymer.

3. Because these inventions are distinct for the reasons given above and have acquired a separate status in the art because of their recognized divergent subject matter, restriction for examination purposes as indicated is proper.

4. During a telephone conversation with Mr. Evelyn M. Sommer on April 19, 2004, a provisional election was made with traverse to prosecute the invention of Group I, claims 1-5 and 15-19. Affirmation of this election must be made by applicant in replying to this Office action. Claims 6-14 and 20-21 are withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.

Art Unit: 1713

5. Applicant is reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 CFR 1.48(b) if one or more of the currently named inventors is no longer an inventor of at least one claim remaining in the application. Any amendment of inventorship must be accompanied by a petition under 37 CFR 1.48(b) and by the fee required under 37 CFR 1.17(i).

***Claim Rejections - 35 USC § 103***

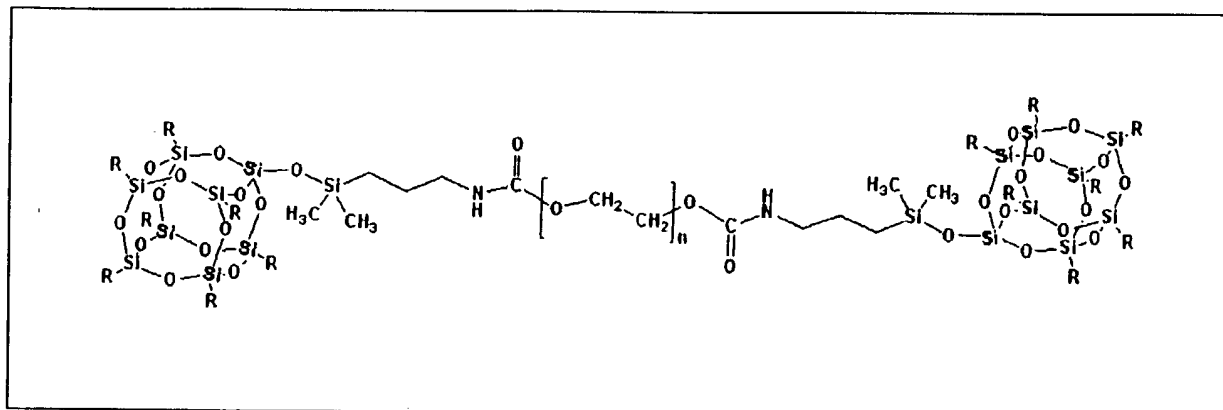
6. **The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:**

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 1-5 and 15-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Vorobyova et al. [Macromolecules, 31, 8998-9007 (1998)] in view of Hsiao et al. [Polymer, 42,599-611(2001)].

The present invention relates to an amphiphilic telechelic comprising POSS having the following structure

Art Unit: 1713



(summary of claim 1)

Vorobyova et al. disclose a linear poly(ethylene oxide) which is end-capped at both ends with hexadecyl alkyl chains through reaction with hexadecyl isocyanate, wherein the linear poly(ethylene oxide) has a molecular weight of 35,000 (page 8999, col. 1).

The difference between the present claims and the disclosure of Vorobyova et al. is the requirement of the end-capping with propyldimethylsilylcyclohexyl-POSS.

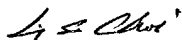
Hsiao et al. disclose that end-capped with POSS, "such organic-inorganic hybrid polymers possess improved properties such as higher  $T_g$ , increased oxygen permeability, reduced flammability and enhanced mechanical strength" (page 600, col. 1). In light of such benefit, it would have been obvious to one of ordinary skill in the art to end-cap PEO with POSS and thereby obtain the present invention.

### Conclusion

Art Unit: 1713

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ling-Siu Choi whose telephone number is 571-272-1098.

If attempt to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Wu, can be reach on 571-272-1114.



Ling-Siu Choi

April 27, 2004